

DETAILED ACTION

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Table of Prior Art

U.S. Pub. No. 2002/0090111 (published Jul. 11, 2002) (“Fukushima”).

U.S. Pat. No. 5,915,027 (issued Jun. 22, 1999) (“Cox”).

General Information Matter

- [1] Please note, the instant Non-Provisional application (10/596,466) under prosecution at the United States Patent and Trademark Office (USPTO), has been assigned to Art Unit 2624. Please ensure, to aid in correlating any papers for 10/596,466, all further correspondence regarding the instant application should be directed to Art Unit 2624.

[2] 10/596,466 has been assigned to David Rashid (Examiner) in the Art Unit 2624 at the USPTO. To aid in correlating any papers for 10/596,466, all further correspondence regarding the instant application should be directed to David Rashid in Art Unit 2624.

Amendments & Claim Status

[1] This office action is responsive to “Preliminary Amendment” (Amendment) received Jun. 14, 2006. Claims 1-12 remain pending.

Priority

[3] Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) (EPO App. No. 03104843.2, filed Jun. 14, 2006), which papers have been placed of record in the file.

Specification

Title Not Descriptive

[4] The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

[5] The following is a quotation of the second paragraph of 37 C.F.R. § 1.75(a):
The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery

[6] **Claim 1-3 and 5** are objected to under 37 C.F.R. § 1.75(a), for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 1-12, all instances of the “-” symbol should be removed.

Claim 1, line 3, and Claim 11, lines 2-3 should be “signal; the method comprising[:]”.

Claim 1, line 8, should be “the information signal; and”

Claims 2-4, all instances of “comprises” should be changed to “comprises[:]”

Claim 9, line 2, and Claim 12, line 2 should be “signal; the arrangement comprising[:]”.

Claim 11, line 4, should be “a first part of the watermark signal in a first”.

Claim 11, line 10, should be “the information signal; and”

Claims 1-12, all instances of "the at least first part of the watermark" should be changed to "the at least predetermined part of the watermark signal".

Claims 1-12, all instances of "the at least first part of the watermark signal" should be changed to "the at least predetermined part of the watermark signal".

Claim Rejections - 35 U.S.C. § 112

- [7] The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- [8] **Claims 1-12** are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Failure to Particularly Point Out and Distinctly Claim

Claim 1, lines 9-15 contains two conditions ((a) when the at least first part of the watermark signal is determined not to be detectable in the first part of the information signal; and (b) otherwise) that are equivalent. If (a), then the at least first part of the watermark signal is embedded in the first part of the information signal to obtain the watermarked information signal (i.e., the at least first part of the watermark signal + the first part of the information signal = the watermarked information signal). If (b), the watermarked information signal includes the first part of the information signal. However, in (a) the watermarked information signal also includes the first part of the information signal because the at least first part of the watermark signal + the first part of the information signal = the watermarked information signal.

Thus in both possible situations (i.e., when the at least first part of the watermark signal is determined to be or not to be detectable in the first part of the information signal), the watermark information signal will always be included the first part of the information signal regardless.

By analogy, the final watermarked information signal of Claim 9 would include the first part of the information signal in both possible situations (i.e., detection or not).

By analogy, the watermarked information signal of Claim 11 would include the first part of the information signal in both possible situations (i.e., detection or not).

By analogy, the final watermarked information signal of Claim 12 would include the first part of the information signal in both possible situations (i.e., detection or not).

Claim Rejections - 35 U.S.C. § 101

[9] 35 U.S.C. § 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In Re Bilski – “Tied To” Criteria and/or Qualifying “Transformation”

[10] **Claims 1-8 and 11** are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. § 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

With regard to (1) above, the method-steps do not tie to any apparatus (e.g., a processor), nor is there any inherent tie to any apparatus (e.g., image calculations). Any tie or inherent tie to an apparatus must be central to the purpose of the invention by Applicant (i.e., a tie or inherent tie to e.g., the embedding method-step of claim 1, and not insignificant pre- or post-solution activity that do not impose a meaningful limitation). The tie to a meaningful method-step must be a particular machine (e.g., a “processor”, not a “machine”). The method-steps do not require a particular machine, and thus claims 1 and 11 are not eligible under (1) above.

With regard to (2) above, no article transformation occurs (i.e., an inherent or explicit microprocessor and memory transformations) to impose a meaningful limit on the claim's scope. Such article transformation must be central to the purpose of the invention by Applicant (i.e., not

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

insignificant pre- and post-solution activity that do not impose a meaningful limitation). The method-steps do not transform any article, and thus claims 1 and 11 are not eligible under (2) above.

It is suggested to tie a particular machine (e.g., a “processor” if supported in the specification, not “machine”) to a meaningful limit on the claim’s scope (e.g., the embedding method-step of claim 1).

Signal Claim

Claim 10 is rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 10 as a whole define(s) a “watermarked information signal”, and “[a] transitory, propagating signal … is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.”³

Positive Statement

Claims 9 and 12 contain supported disclosed structure (i.e., a disclosed machine, apparatus, device, etc.) corresponding to the § 112, 6th paragraph invoked "means plus function" elements. Functional descriptive material may be statutory if it resides on a “computer-readable medium or computer-readable memory”. The claim(s) indicated above contain structure, and define a computer readable medium and are thus statutory for that reason. See Specification at p. 4, Jun. 14, 2006 (emphasis added) (indicating supporting structure by the fact "[t]he instructions may be program code means loaded in a memory, such as a RAM, from a storage medium or from another computer via a computer network. Alternatively, the described features may be implemented by hardwired circuitry instead of software. . ."). The “arrangement” is a disclosed computer apparatus for purposes of § 101 statutory subject matter.

³ In re Nuijten, 84 USPQ2d 1495 (Fed. Cir. 2007).

Claim Rejections - 35 U.S.C. § 102

[11] The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Fukushima

[12] **Claims 1, 6, 9, 10, and 11** are rejected under § 102(e) as being anticipated by U.S. Pub. No. 2002/0090111 (published Jul. 11, 2002) (“Fukushima”).

Regarding **Claim 1**, Fukushima discloses a method (fig. 6) of embedding a watermark signal (fig. 6, item 15) in an information signal (fig. 6, item 1) to obtain a watermarked information signal (fig. 6, item 3);

the method comprising

determining a predetermined first property (fig. 6, item 17) of a first part of the information signal (fig. 6, item 1), said predetermined first property being indicative of whether at least a predetermined first part of the watermark signal (fig. 6, item 15) is detectable in the first part of the information signal (fig. 6, item 1);

embedding the at least first part of the watermark (fig. 6, item 15) in the first part of the information signal (fig. 6, item 1) to obtain the watermarked information signal (fig. 6, item 3), if the at least first part of the watermark signal (fig. 6, item 15) is determined not to be detectable in the first part of the information signal (fig. 6, item 1);

otherwise generating the watermarked information signal (fig. 6, item 3) to include the first part of the information signal (fig. 6, item 1).

Regarding **Claim 6**, Fukushima discloses wherein the information signal (fig. 6, item 1) is divided into a sequence of frames (“MPEG2” at ¶ 0007; fig. 6, item 20 is video that is divided into a sequence of frames), and the first part of the information signal (fig. 6, item 1) is a first one of said sequence of frames (“[t]he original image data 1 is image data of digitized signals in various formats. . . One frame of image data. . . ” at ¶ 0037).

Regarding **Claim 9**, Fukushima discloses an arrangement (fig. 6) for embedding a watermark (fig. 6, item 15) in an information signal (fig. 6, item 3);

the arrangement comprising analyzing means (104; 202; 304) (“microprocessors” at ¶ 0104) for determining a predetermined first property (fig. 6, item 17) of a first part of the information signal (fig. 6, item 1), said predetermined first property (fig. 6, item 17) being indicative of whether at least a predetermined first part of the watermark signal (fig. 6, item 15) to be embedded is detectable in the first part of the information signal (fig. 6, item 1);

embedding means (103,107; 201; 303,307) (“microprocessors” at ¶ 0104) for embedding the at least first part of the watermark (fig. 6, item 15) in the first part of the information signal (fig. 6, item 1) to obtain a modified part-signal (fig. 6, item 16)

a watermarked signal generator (106,107; 201; 306,307) (“microprocessors” at ¶ 0104) for generating a final watermarked information signal (fig. 6, item 3); and

control means (104; 202; 342) (“microprocessors” at ¶ 0104) for controlling the watermarked signal generator to include the modified part signal (fig. 6, item 16) in the final watermarked information signal (fig. 6, item 3), if the at least first part of the watermark signal (fig. 6, item 15) is determined not to be detectable in the first part of the information signal (fig. 6, item 1);

otherwise controlling the watermarked signal generator (fig. 6, item 3) to include the first part of the information signal in the final watermarked information signal (fig. 6, item 3).

Regarding **Claim 10**, Fukushima discloses a watermarked information signal (fig. 6, item 3 is an image, and thus a signal) generated by a method according to claim 1, the watermarked information signal comprising a plurality of part-signals (i.e., the pixels of the watermarked image), a first subset of the plurality of part-signals having embedded therein respective watermark symbols (i.e., those pixels in the image containing the watermark), a second subset of

part-signals having no watermark symbols embedded therein (i.e., those pixels in the image containing no watermark).

Regarding **Claim 11**, Fukushima discloses a method (fig. 6) of embedding a watermark signal (fig. 6, item 15) in an information signal (fig. 6, item 1) to obtain a watermarked information signal (fig. 6, item 3, after at least a first “loop” receiving information item 6); the method comprising

embedding at least a first part of the watermark (fig. 6, item 15) in a first part of the information signal (fig. 6, item 1) to obtain a modified part-signal (fig. 6, item 3);

determining a predetermined first property (fig. 6, item 6) of the modified part-signal (fig. 6, item 3), said first property being indicative of whether said embedding results in a detectable modification of the first part of the information signal (¶ 0095 at “For example, in a case in which the WM amount detected in the WM information 6 becomes . . . ”);

generating the watermarked information signal (fig. 6, item 3, after at least a first “loop” receiving information item 6) to include the modified part-signal (fig. 6, item 3), if the embedding is determined to result in a detectable modification of the first part of the information signal (¶ 0095);

otherwise generating the watermarked information signal (fig. 6, item 3, after at least a first “loop” receiving information item 6) to include the first part of the information signal (fig. 6, item 1).

Claim Rejections - 35 U.S.C. § 103

[13] The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[14] This application currently names joint inventors. In considering patentability of the claims under § 103(a), the examiner presumes that the subject matter of the various Claims was commonly owned at the time any inventions covered therein were made absent any evidence to

the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under § 103(a).

Fukushima

[15] **Claim 5** is rejected under § 103(a) as being unpatentable over Fukushima.

Regarding **Claim 5**, while Fukushima discloses a method according to claim 1 (i.e., embodiment 3; fig. 6), the embodiment 3 method does not disclose wherein the information signal is an audio signal and wherein the watermark signal is an audio watermark signal.

Fukushima teaches wherein the information signal is an audio signal and wherein the watermark signal is an audio watermark signal (“audio or voice data” at ¶ 0002).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the information and watermark signals of Fukushima to be audio signals as taught by Fukushima “to embed particular data in various data” and “to protect a copyright of such information is embedded in original data to be protected so as to thereby prevent illegal operations”. “[S]tudy and research have been conducted to embed related identifier information or a comment in the image data, audio data, and/or text data.” Fukushima at ¶¶ 0002-0003.

Fukushima in view of Cox

[16] **Claims 7 and 8** is rejected under § 103(a) as being unpatentable over Fukushima in view of U.S. Pat. No. 5,915,027 (issued Jun. 22, 1999) (“Cox”).

Regarding **Claims 7 and 8**, Fukushima does not disclose wherein the first part of the watermark comprises at least a first watermark symbol of a sequence of watermark symbols, wherein the sequence of watermark symbols comprises a sequence of binary watermark symbols.

Cox teaches digital watermarking (fig. 1) wherein a first part of the watermark comprises at least a first watermark symbol of a sequence of watermark symbols (“[t]he watermark signal, in the form of a finite sequence of symbols chosen from an alphabet. . .” at 4:41-45),

wherein the sequence of watermark symbols comprises a sequence of binary watermark symbols (the digital alphabet watermark symbols are composed of a sequence of binary watermark symbols 0s and 1s).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first part of the watermark of Fukushima comprise at least a first watermark symbol of a sequence of watermark symbols, wherein the sequence of watermark symbols comprises a sequence of binary watermark symbols as taught by Cox “to achieve very significant savings in computation [when these subregions correspond to the 8.times.8 pixel blocks used for MPEG and JPEG compression and decompression]”. Cox at 1:4-14.

One such prior system presented “a significant difficulty [[is]] for third party device providers desiring to read embedded information for operation or denying operation of such a device.” Cox at 1:60-67. Thus, watermarked symbols of the alphabet could now allow “readable” decoded watermarked data.

Allowable Subject Matter

[2] Claims 2-4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, 2nd paragraph, and 35 U.S.C. § 101; and the claim objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

[3] Claim 12 allowed.

Reasons for Indicating Allowable Subject Matter

[4] The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claim 2, while the prior art of record discloses the method of claim 1, it would not have been obvious to include the generating step.

Regarding Claim 3, while the prior art of record discloses the method of claim 1, it would not have been obvious to include the embedding step. Claim 4 would be allowable by dependency.

Regarding Claim 12, while the prior art of record discloses Claims 1, 9, and 11, it would not have been obvious to initially perform the embedding and analyzing steps before generating the final watermarked information signal, in addition to performing the controlling step.

Conclusion

Citation of Pertinent Prior Art

[17] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 6222932 B1; US 6259801 B1; US 20020012446 A1; US 6415041 B1; US 20020087864 A1; US 6470090 B2; US 6510233 B1; US 6665419 B1; US 6757405 B1; US 6826289 B1; US 6909784 B1; US 7092546 B2; US 7127065 B1; and US 7187782 B2.

[18] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

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